

**Notice of Allowability**

Application No.

09/972,428

Examiner

John Ruggles

Applicant(s)

PIERRAT ET AL.

Art Unit

1756

**- The MAILING DATE of this communication appears on the cover sheet with the correspondence address-**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed 6 May 2004 (entered).
2. ☒ The allowed claim(s) is/are 24-26,28-30,32-35 and 56 (now renumbered as 1-11 in the attached Examiner's Amendment).
3. ☒ The drawings filed on 05 October 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_.

  
John Ruggles  
Examiner  
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## **DETAILED ACTION**

### ***Response to Amendment***

Claims 1-22 remain withdrawn as previously non-elected without traverse, claims 23, 27, 31, and 36-55 have been canceled, and claims 24-26, 28-30, 33, and 56 have been currently amended. Therefore, only claims 24-26, 28-30, 32-35, and 56 remain under consideration.

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

All previous rejections and objections presented in that Office action are now withdrawn in view of (1) Applicants' current amendments and accompanying remarks filed on 6 May 2004 and (2) the following examiner's amendment authorized by the attorney of record.

### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mark Haynes on 21 May 2004. He also confirmed that there was no need to amend inventorship, since each of the currently named inventors are still inventors of at least one claim remaining in the application. For issue, he further agreed to the renumbering of claims 24-26 as 4-6, claims 28-30 as 7-9, claims 32-34 as 1-3, claim 35 as 11, and claim 56 as 10.

The application has been amended as follows:

IN THE CLAIMS:

Cancel claims 1-22.

Claim 56 lines 5-6, delete "at least ninety percent (90%) of the pattern is defined by the phase shifting pattern"

Claim 56 lines 6-7, change "all of the features in the critical path of the pattern" to --all critical path features of the pattern--

*Allowable Subject Matter*

This application is in condition for allowance except for the presence of claims 1 to 22, which were previously non-elected without traverse. Accordingly, claims 1-22 have now been cancelled.

Claims 24-26, 28-30, 32-35, and 56 are now allowed.

The following is an examiner's statement of reasons for allowance: while the concept of different dosing between the PSM exposure and subsequent overlapping trim mask exposure of a resist layer in integrated circuit (IC) manufacture to obtain the smallest features with the best resolution are not new, the specific dosing ratio of 1.0 (for the PSM) to  $r$  (for the trim mask) where  $2 \leq r \leq 4$  of instant claim 32 and, more specifically, 1:2 (PSM:trim mask) of instant

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claim 35 are both distinguished over the prior art (which does not teach these specific ratios).

Claims 24-26, 28-30, and 33-34 depend on claim 32.

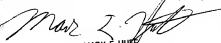
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Ruggles whose telephone number is 571-272-1390. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
MARK F. HUFF  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700

  
John Ruggles  
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